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AUTHOR Kellogg, Don
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ABSTRACT

In spring of 1995 a partnership was formed between the Weakley County, Tennessee, school system and the Center of Excellence for Science and Mathematics Education (CESME) at the University of Tennessee at Martin to provide Internet access and training to rural teachers. The school system provided each of 20 science and mathematics teachers with a computer and telephone cable, and CESME supplied modems and software and paid for the telephone service to teachers' classrooms. Teachers attended a 16-hour training program over one semester that included use of the World Wide Web (WWW), newsgroups, and E-mail. Homework was completed via E-mail between sessions. A technology use survey administered at the beginning and end of the semester showed increases in the 27 items concerning Internet and computer use and feelings of competence. For the following fall semester, 15 of the 20 teachers accepted the option of keeping the Internet connections if they would develop a school WWW page and initiate a collaborative classroom project involving Internet use. The fall semester training was conducted through two face-to-face sessions, a WWW site, and E-mail. (TD)

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GETTING RURAL TEACHERS ON-LINE WITH SLIP

Don Kellogg*

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GETTING RURAL TEACHERS ON-LINE WITH SLIP

Don Kellogg*

Out in rural America the "information superhighway" often turns into a dead end. The desire is there but the rural telecommunications infrastructure provides few "on ramps." This lack of access is not uniquely a rural phenomenon. The National Academy of Sciences (NAS, 1995) proposes that

> "At present relatively few elementary and secondary school classrooms are linked to the rapidly growing grid of information. In their isolation, these classrooms risk missing out on a development that is rapidly changing the way we live, work, and play."

However the problem is considerably more severe in rural areas. According to the U.S. Department of Commerce information "have nots" are disproportionately found in this country's rural areas and its central cities." In their July 1995 study the U.S. DoC found the following:

- Concerning personal-computer penetration and the incidence of modems when computers are present in a household, no situation compares with the plight of the rural poor
- Among households with PCs, the youngest in rural areas also fare worst in modem penetration, ...
- In terms of computers, rural senior citizens (55 years and older) possess the lowest penetration (11.9%)

The problem of limited penetration in rural areas has many contributing factors but high in the list is long distance charges. While the urban dweller can access Internet providers through a local phone number their rural counterparts not only bear the costs of purchasing access but additionally the costs of long distance to get to that service. Surfing the web under those conditions can quickly take on the financial dimensions of a luxury cruise!

In Tennessee, as in many other states, some access has been provided through 800 numbers. This solution has at least three drawbacks. First, cost of such a solution is high and the long distance charges are simply transferred from the individual to the state. Second, the bandwidth provided by such a solution is often low making possible only text based access and extremely slow file transfer. And finally the number of 800 numbers made available has frequently proved to be woefully insufficient to handle the demand.

An additional obstacle to implementation of telecommunications technologies such as the Internet in rural schools is the lack of availability of professional development opportunities. Of course even if those opportunities existed there would be little incentive for the teacher without Internet access to participate.

But is this lack of access to the technology and to the professional development needed to use it really a problem of great significance? The National Academy of Science WWW site titled Reinventing Schools: The Technology is Now addresses just such issues and concludes that most schools are still quite like the factory schools model and that changes must occur and technology has a vital role in those changes. Unfortunately one of the more pressing problems in bringing about the desired changes is the teacher's opportunities for professional development.

* Director, Center of Excellence for Science and Mathematics Education at the University of Tennessee at Martin, Martin TN 38238

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They state:

"Teachers receive less technical support than does any other group of professionals. Computers occupy the desk-tops of most professionals in the United States, but not in classrooms; there, computers are often used exclusively by students. The average worker in America can take advantage of $50,000 worth of capital invested in that job; the comparable figure for teachers is $1,000. Most teachers do not even have immediate access to a telephone."....

"The professional development of teachers has often been an afterthought in American schools. When budgets get tight, career development is often one of the first things to go. But if teachers are to become comfortable with the technologies that will reshape schools, they must receive both preservice training during their college years and inservice training during their careers..... In the long run, for technology to succeed, as much time and money must be invested in teachers as is invested in the actual hardware and software..... One of the most powerful methods of professional development is to establish explicit links between teachers and organizations outside schools such as corporations, universities, nonprofit institutions, and federal laboratories."

In the spring of 1995 the Center of Excellence for Science and Mathematics Education (CESME) at the University of Tennessee at Martin and the Weakley County school System formed a partnership to deal with the access and in-service problems. Twenty Weakley County science and mathematics teachers were given the opportunity to fully experience the Internet. The Weakley County System, a rural system situated in northwest Tennessee, provided each teacher a computer and installed telephone cables to each of the 20 classrooms. The CESME supplied modems and software, and paid for telephone service in those classrooms. Once the teachers had phone connections, they were provided SLIP access to The University of Tennessee at Martin's Internet node through a twenty-unit bank of 14.4 Kb/sec modems.

A sixteen-hour training program, conducted over a one semester period has prepared the teachers to make use of their Internet connection. The teachers met for 2-3 hours every two weeks during the spring semester in the state-of-the-art Gooch Hall computer lab on the UT Martin campus. This initial training program involved the use of the World Wide Web, newsgroups, and e-mail. Homework was assigned and completed via e-mail during the two weeks between training sessions.

A technology use survey form was designed and administered to participants at the beginning of the project to determine the initial extent of technology use and at the end of the spring semester to determine changes. That survey form along with the results can be found at http://cesme.utm.edu/ WCPages/Survey.html. Although the number of teachers involved is not large enough to warrant attaching statistical significance to the results, as one might expect, the teachers showed increases in the twenty-seven items dealing with Internet and computer use and feelings of competence to use and teach those functions..

At the beginning of the fall '95 semester the teachers were given the option of keeping the telephone connections through the 1995-96 school year, at the expense of the CESME, if they would develop a school web page, participate in one

collaborative classroom project involving Internet use, and initiate one collaborative classroom project involving Internet use. Fifteen of the original twenty teachers agreed to participate.

During the fall semester two face-to-face training sessions were conducted with the rest of the training being provided through a project WWW site and through e-mail. Additional support was provided by CESME staff visits to theteachers' classrooms.

By the end of the 1995-96 school year these 15 teachers will have spent 18 months learning to use the resources of the Internet and designing and testing classroom activities which make meaningful use of the myriad resources of the Internet. These activities along with links to other high quality resources will be compiled into science and mathematics web pages for the use of teachers throughout the Internet universe. The results of their efforts can be visited on the WWW at http://cesme.utm.edu.

In the summer of 1995 the Tennessee Commissioner of Education, Dr. Jane Walters, announced plans to have Internet access to all schools in the state through either direct connections or through 28.8 Kb/sec modems by fall of 1996. The teachers from Weakley county will be ready to provide training and support for their building peers and for teachers in other systems throughout West Tennessee. They will also share their knowledge, experience and adventures through local, state, and national professional meetings.

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